

On Call with Melton and Thomas

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Iris Vascular Tufts

- AKA capillary hemangioma or microhemangioma
- Single or multiple – usually bilateral
- Most always at pupillary border
- Most patients are over age 50
- Can lead to spontaneous hyphema
- Natural course is benign (self-limited)
- Recurrence is unusual (can Tx with argon ablation)
- Tx with cycloplegia and steroids (similar to traumatic hyphema)

Race and Giant Cell Arteritis

- Most studies have found GCA to be pretty much a disease of Caucasians
- A newer study has shown that patients of African descent are roughly at EQUAL risk of developing GCA!
- Therefore, “race” should no longer be a risk factor when evaluating patients with suspected GCA.
- Women are still at higher risk
- All most all patients are aged 50 or older.

JAMA Ophthalmol, October, 2019

The Eye and the ED

Most common ED Diagnosis

Conjunctivitis	33%
Corneal injury	13%
Corneal F.B.	8%
Hordeolum	4%

- Mean ED charge \$989.30 for eye visit
- Eye visits: 1.5% of all visits

Vazini K, et al. Ophthalmology 2016;123(4):917-19

- “About 400,000 patients per year present to U.S. emergency departments with eye injuries, and children represent up to one-third of those injured.”
JAMA Ophthalmol, August, 2018

Same Day Problem Work-Ins

- Average “Urgent Care” visit costs \$168.00
- ER visit is “over 10 times more expensive”
- Antibiotics for viral conjunctivitis is common practice in these settings
- “We’ve cultivated a culture of “yes”. If patients want or need to be seen, then they get an appointment.”
- “There are ways to provide same-day care. Such care is good medicine -- and it’s good for the practice.”

EyeNet October, 2019

Imaging in the Emergency Department

- MRI – Optic disc edema, diplopia, cranial nerve palsy, decreased vision.
 - Expensive – much less needed than CT
- CT – Non-neuro-ophthalmological conditions
- Most common conditions: “conjunctivitis, corneal abrasion, dry eye syndrome, corneal foreign body, PVD, and blepharitis.”
- “Eye problems account for approximately 2 million ED visits every year, with 44% of these visits being for nonemergent problems.”
Am J Ophthalmol. March 2020

Retinal Artery Occlusion (RAO)

- “RAO is analogous to and shares almost the same risk factors as cerebral infarction - in fact acute symptomatic RAO embolic etiologies necessitates immediate referral for stroke evaluation.”
- Since RAO can be associated with GCA, be sure to rule out GCA, however most cases of RAO are non-arteritic in origin.
- Transient RAO is defined as “an acute onset of major visual loss affecting 1 eye, together with rapid and complete reversibility of symptoms and no residual signs ischemic damage.”
- “Migraine with aura is associated with increased risk of RAO compared with migraine without aura.”

Am J Ophthalmol. May, 2021

Perspective on Posterior Vitreous Detachment

- Occurs mostly between ages 50 and 70 (peak incidence 62)
- No association with refractive error, except patients with -3.00D or more go to P.V.D. 5-10 years earlier
- 80-90% of breaks associated with P.V.D. are in the superior quadrants
- If a retinal break occurs secondary to a PVD, evidence of such can be seen in the anterior vitreous, even before dilation. These particles, called Shafer's Sign, represent pigmented debris released during the retinal break and come from retinal pigmented epithelium and/or red blood cells.

Acute PVD and Retinal Tears

- The rate of an acute retinal tear associated with an acute symptomatic PVD is about 8% at the initial visit, and 1.5% of eyes without a tear on the initial visit are found to have a tear on follow-up examination.

Ophthalmology, January 2018

AAO-PPP on PVD Patient Care

“Patients presenting with an acute PVD and no retinal breaks have a small chance (~2%) of developing retinal breaks in the weeks that follow. Selected patients, particularly those with any degree of vitreous pigment, vitreous or retinal hemorrhage, or visible vitreoretinal traction, should be asked to return for a second examination promptly if they have new symptoms or within 6 weeks following the onset of PVD symptoms.”

Preferred Practice Guidelines, AAO, Oct, 2019

Follow-up After Initial PVD Event

- About 2% of patients with normal findings will develop a subsequent retinal tear.
- In this study, 45% of these retinal breaks “were found more than 6 weeks after presentation.”
- At the Wills Eye Hospital Retina Service; “60% of patients in our study had at least a 4-6 week follow-up. Most physicians in our practice do not routinely follow up patients beyond this timeframe.”
- Only about half of these subsequent events were symptomatic, therefore there may be a need to re-evaluate acute PVD patients more frequently than is currently common practice.

Ophthalmology, April 2020

What About Scleral Depression

- “An examination using a 28 diopter lens with scleral depression did not provide any additional benefit to an examination without depression during indirect ophthalmoscopy.”
- “In many areas around the world ophthalmologists have progressively shifted from indirect ophthalmoscopy with 28 diopter-type lenses to new fundus lenses at the slit lamp to improve the comfort of the patient without scleral depression.”

Am J Ophthalmol. November 2018

Treatment of Vitreous Floaters

- Treatment options:
 - Live with them
 - Vitrectomy
 - Vitreolysis
- YAG laser – angle of focus can be changed to reach floaters; special vitreous lenses allow the laser beam to focus on floater
- Advantages: simple, noninvasive, no pain or discomfort
- Disadvantages: healthy eyes getting elective surgery, risk of retinal detachment, possibly worsening of symptoms
- Clear visualization of floaters key to successful treatment
- Treatment may require more than one laser session; symptomatic vitreous opacifications (SVOs): only SVO's > 4mm

Insights into Myodesopsia

- “In bothersome cases there is profound degeneration in contrast sensitivity function qualifying the condition as a disease that can be referred to as vision-degrading myodesopsia, so as to distinguish such cases from vitreous floaters that are not clinically significant.”
- Limited vitrectomy has demonstrated a high safety profile with exceptional efficacy and cost-efficiency.
- About 15% of patients developed cataracts in about 1 year.

Am J Ophthalmol., August, 2019

Malpractice Risks Regarding Retinal Detachments

- Uptick in legal claims for diagnostic errors
 - Especially retinal detachments
- “And by far the most frequently missed diagnosis in our entire study was RD— nothing else came close.”
- 85% of these missed RD's presented with risk factors specific to RD
- “The primary pathogenic mechanism— and the biggest risk factor— for RD is PVD.”
- Comprehensive ophthalmologists (and optometrists) should have a low threshold for referral to a retinal subspecialist.”

Reference: EyeNet, April, 2018

Vitreolysis for Symptomatic Floaters

- Two options: YAG laser or vitrectomy
- Newer “Reflex Technology” enhances YAG success
- Floater material is both fractionated and vaporized
- Multiple sessions may be required
- Weiss ring easier to treat than amorphous clouds
- About half of patients obtain symptomatic relief
- Complications are few, but can be serious

Survey Ophthalmol, March 2020

Timing and RD Repair: Is there a hurry?

- Preoperative VA is the strongest predictor of postoperative VA
- When central vision is affected, about 30% of patients ultimately achieve 20/40 or better
- “There is no difference in VA outcomes among patients who underwent repair within the first week of onset.”
- VA can improve for months to years after surgical repair
- There was no association between duration of macular detachment and postoperative VA
- “Clinical evidence suggests that the duration of macular detachment has a minor, if any, effect on visual outcome when repair is performed within about one week. Similarly, many fovea-sparing RD's can likely be deferred for a short period without affecting visual outcomes.”

IOVS Clin. November 2013

Regarding Pupillary Abnormalities

- If there is:
 - No ptosis
 - No EOM dysfunction

Then it's nothing “bad” and a scan is not indicated

Consider:

Adies, pharmacologic causation, or “discovered” physiologic anisocoria as probabilities

Management of 3rd Nerve Palsy

- Pain vs no pain, pupil involvement, or not
 - Does not matter!
- All patients need emergent CTA or MRA
- Send straight to ED; not to an ophthalmologist
- However, about 95% of 3rd N. palsies are simply “microvascular,” and not aneurysmal in nature

Foster PJ, et al. JAMA Ophthalmol 2017;135(3):203-4.

Bacterial Conjunctivitis

- Unilateral or bilateral red eye(s) with purulent or mucopurulent discharge of varying degree
- In subtle cases, carefully examine the lacrimal lake under high magnification and look for microparticulate debris which can be evidence of bacterial infection.
- Preauricular lymphadenopathy is uncommon, but can be present in hyperacute cases
- Chemosis may be present in more severe cases
- SPK can be present, especially if staphylococcal etiology. This is usually the result of staph exotoxin chemotoxicity, and tends to be seen mostly inferonasally because of tear film dynamics
- Common etiology: *Adults:* Staph aureus, Staph epidermidis, Strep pneumoniae
Children: Strep pneumoniae, Haemophilus
- Therapy: *Adults:* Tobramycin, Polytrim, or Fluoroquinolone
Children: Polytrim or Polysporin ung
- Treat for five to seven days as a rule

Povidone - Iodine 5% ophthalmic solution

- Broad spectrum microbicide
- Indicated for “irrigation of the ocular surface”
- “Off label” use: Tx adenoviral keratoconjunctivitis
 - Anesthetize with proparacaine
 - Instill 1 or 2 drops of NSAID
 - Instill several drops Betadine 5% in eye(s), close eye(s)
 - Swab or rub excess over eyelid margin
 - After 1 minute, irrigate with sterile saline
 - Instill 1 or 2 drops of NSAID
 - Rx steroid qid x 4 days
- No reports in clinical trials of adverse reactions.
- Marketed as Betadine 5% ophthalmic prep solution (30 ml opaque bottle) by Alcon surgical
- CPT 99070 supply code

Adenoviral Infections

- Common cause of “red eyes”
- Assume adenovirus until proven otherwise
- Often have pre-auricular node
- Non-purulent watery discharge
- Usually starts in one eye and spreads to fellow eye in a few days
- Always evert lids to survey tarsal conjunctiva
- With EKC, spotty sub-epithelial infiltration in 50 to 75% of untreated cases

Acute Conjunctivitis and Antibiotic Use

- “Conjunctivitis is the most common cause of red or pink eye, but most (up to 80%) are viral.”
- “Topical antibiotics (for bacterial infection) provide only a very modest beneficial effect on clinical remission.”

Antibiotic Rx	Combo Rx
- OD's – 44%	OD's – 30%
- MD's – 36%	MD's – 23%
- Non-Eye Dr's – 60%	Non-Eye Dr's – 8%
- One-fifth of all Rx's were for a combination antibiotic-steroid “which are contra-indicated in acute cases of conjunctivitis.” (Not True!)

Ophthalmology, August, 2017

- Use of AdenoPlus may reduce diagnostic uncertainty and

Corneal Abrasion

- Common ocular injury associated with pain, foreign body sensation, tearing, photophobia, and blurred vision
- Use antibiotic qid or antibiotic ophthalmic ointment tid for 1-3 days as needed
- Trauma
 - Fingernail, paper cut, tree branch - increased risk of recurrent corneal erosion
 - Rule out foreign body
 - Cycloplegic if indicated for pain
- Treatment
 - Small abrasions - topical antibiotic drops or ointments alone
 - Extensive abrasions – topical antibiotics, cycloplegics, nsaid's, and pressure patching or bandage soft contact lens
- If caused by organic material requires closer follow-up
- NEVER PATCH corneal abrasion caused by contact lens wear

Recurrent Corneal Erosion

- A breakdown of the epithelial layer of the cornea due to a breach in the integrity of the basement membrane
- Etiology: corneal dystrophy or trauma
- Symptoms: most common is history of sharp pain during sleep or upon awakening
- Signs: range from a pinpoint epithelial defect to a frank erosion/abrasion
- Tx: debridement, hypertonic preparations or artificial tears/gel/ointments, pressure patching, bandage SCL, ASP, doxycycline and steroids

Systemic Prednisone

- Most common Rx'd systemic corticosteroid
- Common initial dosage 40-60 mg
- Available generically in both tablets and DosePaks (5 or 10 mg at 6 or 12 day course)
- Questions to ask before prescribing?
 - Diabetic?
 - Peptic Ulcer Disease?
 - Tuberculosis?
 - Pregnant?

Ocular Lymphangiectasis

- History: patient notices blister on conjunctiva; may be associated with irritation
- Clear, fluid-filled dilation of conjunctival lymphatic vessels
- Single or multiple small, transparent pearl-like blebs or cysts
- Surrounding bulbar conjunctiva quiet
- ICD-9 code 372.89
- Treatment:
 - Patient reassurance
 - Drainage of blebs/destruction

Corneal Foreign Body

- Take good Hx to help rule out penetration
- Remove foreign body and corneal rust deposits
- Cycloplege to prevent or treat secondary iritis
- Do thorough intraocular exam with BIO
- Cycloplege if any secondary iritis
- Prophylactic antibiotic drops +/- NSAID drops
- F/U until epithelial integrity re-established

Perspective on Oral Prednisolone

- Using oral prednisolone at 1,250 mg/day is equivalent to 1,000 mg of I.V. methylprednisolone sodium succinate (Solu-Medrol®) for 3 days in treating acute optic neuritis.
- “There was no significant difference in adverse events between the groups.”
- And,... we are concerned about using 40 – 60 mg/day!?!
JAMA Neurology, June, 2018

Alternative Oral Anticoagulants to Coumadin

- Direct thrombin inhibitor
 - Pradaxa (dabigatran)
- Oral factor Xa inhibitor
 - Xarelto (rivaroxaban)
 - Eliquis (apixaban)
 - Savaysa (edoxaban)

Rivaroxaban (Xarelto®) vs. Apixaban (Eliquis®)

- Xarelto – once daily
- Eliquis – twice daily
- “Increasingly, observational studies suggest that bleeding risk is lower with apixaban than with rivaroxaban.”
- “Apixaban is more effective in preventing short-term venous thromboembolism (VTE) recurrence.”

Lancet Haematol. (as reported in NEJM Journal Watch – Gen Med. January, 2019.

Reversal Agents for Anticoagulants

- Vitamin K quickly reverses warfarin, a vitamin K antagonist
- Newer anticoagulants: Pradaxa, Xarelto, Eliquis, and Savaysa
- Praxbind reverses Pradaxa
- The Xa-inhibitors; Xarelto, Eliquis, and Savaysa are inhibited by **Andexanet** within minutes
- Andexanet is a major enhancement to the clinical usefulness of these newer anticoagulants!

Reference: NEJM, November 2015

Intraocular Bleeding with Novel Anticoagulants

- Dabigatran (Pradaxa®), rivaroxaban (Xarelto®), apixaban (Eliquis®), edoxaban (Lixiana®)
- Reduce the risk of intraocular bleeding by ~1/5 compared with warfarin (Coumadin®)
- Consider for patients at risk for proliferative diabetic retinopathy, the wet forms of ARMD, etc.

Sun MT, et al. JAMA Ophthalmol,

2017;135(8):864-70

Efficacy of New Oral Anticoagulants Compared to Warfarin

- 50% fewer hemorrhagic strokes
- 25% more GI bleeds
- 10% lower all cause mortality

Lancet,

December, 2013

INR: International Normalized Ratio

- A universally accepted measure of “coagulability”(clotting) behavior of blood in patients taking Coumadin® (warfarin).
- An INR of 1 is a normal, physiological clotting behavior.
- Target anticoaguable profile is an INR generally between 2 and 3.
- The higher the INR > 3, the thinner the blood thus increasing the risk of bleeding and hemorrhagic stroke.

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